Transmission and genetic diversity of Enterococcus faecalis among layer chickens during hatch

BACKGROUND: Studies on transmission of Enterococcus faecalis among chickens during hatch have not been carried out so far. Information about vertical transmission and subsequent spreading and colonization of the cloacal mucosa through cloacal ‘drinking’ during hatch are important to understand the epidemiology of E. faecalis infections. In the present investigation vertical transmission and subsequent spreading and colonization of the cloacal mucosa of chickens by E. faecalis through cloacal ‘drinking’ were examined. METHODS: Two different batches of layer chickens originating from 45 weeks old Brown and White Lohmann parents, respectively from the same farm were sampled in the hatcher. Isolates were confirmed to be E. faecalis by polymerase chain reaction (PCR) and further by multilocus sequence typing (MLST) to state their population structure and comparison made to sequence types previously obtained from chicken. RESULTS: A total of 480 chickens were swabbed from the cloacae just after hatch and after 24 hours. A total of 101 isolates were confirmed as E. faecalis by a species specific PCR. The prevalence of E. faecalis increased from 14% at 0 h to 97% after 24 h for the Brown Lohmann chickens and from 0.5% to 23% for the White Lohmann flock. The 84 isolates analysed by MLST were distributed on 14 sequence types (ST). Three ST (401, 82 and 249) accounted for 64% of all isolates analysed by MLST after 24 h. ST 82 has previously been reported from amyloid arthropathy and other lesions in poultry. CONCLUSIONS: The present findings demonstrated a high potential of a few contaminated eggs or embryos to rapidly facilitate the spread of E. faecalis to almost all chickens during hatch.